

UNITED STATES SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN that I, Martin Schlueter, a citizen of Germany, having an address of Post Office Schull, Horse Island, Schull Co. Cork, Ireland, have invented certain new and useful improvements in a

PORTABLE POWER TRAINING DEVICE

of which the following is a specification.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention pertains to a portable power training device for developing and strengthening body muscles by manually overcoming spring forces. The power training device comprises a base body and at least one rope-like spring element that is arranged on the base body.

2. The Prior Art

Numerous power training devices for developing and strengthening muscle sections of the human body are known. The designs of these devices differ significantly. Large stationary devices are primarily installed in fitness centers and power training areas of athletic clubs. Although these devices are relatively efficient, it is disadvantageous that they can only be used at the above-mentioned locations. These devices are not portable and can only be rarely used in private residences due to their dimensions.

In order to broaden the use of power training devices, numerous smaller, portable training devices were developed which can also be used in private residences because they only require little storage space. It is known that many of these devices operate with spring forces that need to be

overcome by muscle force when training exercises are performed. The training versatility is frequently limited with small domestic devices. Only a few muscle sections can be trained and developed by means of targeted stress exercises. The generally desired simple design of a portable device limits its versatility accordingly.

A relatively simple power training device is disclosed in DE 54 13 48. This device only contains a few individual parts, namely a holder that is mounted on a wall, two pulleys and a rope that is guided around the pulleys. However, this simple device is intended for stationary use because it needs to be arranged on a wall.

SUMMARY OF THE INVENTION

The invention is based on the objective of disclosing a portable power training device that has a simple design and makes it possible to perform a series of training exercises that stress different muscle sections.

According to the invention, the base body is a long integral profile and contains at least one groove section for inserting the spring element which extends parallel to its longitudinal extent. There is one eyelet, through which the

rope element is guided, and which is arranged within the region of the free ends of the base body in the groove sections. The rope element respectively has a thickening, the diameter of which is greater than the diameter of the eyelet, on its free ends.

The device according to the invention advantageously consists of only a few components, namely the base body, at least one spring element, eyelets arranged on the base body and thickenings arranged on the spring element. Due to the small number of components used, the device has a simple yet robust design, namely even if it is subjected to frequent use.

The base body advantageously consists of only one part. It contains at least one groove section, into which the rope-like spring element is inserted. Once inserted, the spring element is at least partially accommodated within the base body. This advantageously makes it possible to place a hand or a foot against the base body within this region. In addition, the mobility of the rope-like spring element in the groove is simultaneously ensured. Due to this groove, the rope element does not become jammed at the locations at which it engages on the base body.

The guidance of the rope-like spring element in the groove section allows a series of exercises in which the person performing the exercises is supported on the base body with one hand, with one foot, with one knee or with other body sections. While being supported in this fashion, the person performing the exercises is able to exert a force upon the rope-like spring element with the other hand, with the other foot or even with both hands in order to exercise various muscle groups.

The base body is realized in the form of a long profile. Due to this design, its free ends that contain the eyelets need to have a defined distance from one another. This distance is, for example, chosen at approximately 90 cm. This means that the free ends of the rope-like spring element emerge from the groove in the base body at locations that are spaced apart by approximately 90 cm. The free ends of the spring element may, for example, vertically extend out of the groove such that exercises can be performed with various body sections at the corresponding location.

It is, in particular, possible to guide a spring element that is already subjected to tensile stress through the groove alternately with both arms. In this case, it is required to constantly exert a force with both arms.

The groove arranged in the base body also makes it possible to access the rope-like spring element within the region between the eyelets. Due to this measure, the rope-like spring element can be removed from the groove and tensioned by exerting a force, e.g., similar to a bow.

The thickenings arranged on the free ends of the spring element prevent the spring element from being pulled out of the base body. Once the thickenings contact the islets, the free ends of the spring element are prevented from sliding through the eyelets. This means that the spring element and the base body are connected to one another in a captive fashion. The thickenings on the free ends of the spring element also make it possible for the user of the device to securely take hold of the spring element on its free ends. This allows an optimal transfer of a muscle force onto the spring element.

According to a first additional development of the invention, the base body is realized in the form of a profiled rod. The base body may, for example, simply consist of a long round profile, in the outer surface of which a groove is arranged that preferably extends over its entire length.

In order to achieve a versatile handling of the device according to the invention, a bow-type handle preferably is integrally formed onto the profiled rod approximately in the central section of its longitudinal extent. The bow-type handle does not significantly complicate the design of the base body since it is integrally connected to the profiled rod. However, the bow-type handle makes it possible to take hold of the base body at a different location, for example, with one hand or with one foot. The bow-type handle preferably has such a length that it can be taken hold of with both hands or both feet can be placed into the intermediate space between the bow-type handle and the profiled rod. The length amounts, for example, to approximately 30 cm.

If the device according to the invention is placed onto the thighs of a seated user, an anatomically correct distance between the legs is adjusted due to this length of the bow-type handle because the bow-type handle is arranged between the legs. The inner side of the thighs can be placed against the ends of the bow-type handle such that they are spaced apart by a distance that approximately corresponds to the length of the bow-type handle.

In instances in which the groove is, in particular,

arranged over the entire length of the profiled rod, one additional development of the invention proposes that the groove walls of the profiled rod contain a flattening in the central section of their longitudinal extent. This flattening is preferably realized so flat that groove walls are no longer present, i.e., an open region is produced in which the rope-like spring element extends. The defined progression of the spring element is ensured by the groove sections situated adjacent to the open region. In addition, the open region advantageously makes it possible to simply take hold of the spring element because it does not have to be guided out of a groove but rather is openly accessible.

In order to make it possible to place various body sections, for example, hands or feet, against the sections of the base body and/or the bow-type handle, grips are integrally formed onto the surface of the bow-type handle and/or the surface of certain sections of the profiled rod. These grips may, for example, be realized in the form of ribs, elevations, furrows or naps. In any case, they serve for roughening the surface and for realizing the handles. Hands or feet can be placed against the handles, wherein the frictional force between the hands or feet and the bow-type handle or the profiled rod is increased due to the grips.

All solid materials may be considered for the base body. For example, the base body may be manufactured from a light metal such as aluminum. However, it would also be conceivable to manufacture the base body from a strong plastic material, for example, plastic that is reinforced with glass fibers, or from wood.

The spring element preferably consists of rubber. For example, a rubber cord has the elasticity required for a spring element.

If a rubber cord is used as the spring element, one additional development of the invention proposes that the thickenings arranged on the free ends of the spring element are realized in the form of rubber bodies that are integrally connected to the rubber cord. This means that the spring element and its thickenings are also realized integrally. This additionally simplifies the design of the device according to the invention.

The rubber bodies have, for example, a spherical shape such that they can be comfortably held with one hand. A rubber ball on the free end of the spring element also makes it possible to install the base body on an installation surface, for example, a floor, with the rubber ball arranged

on its one free end. The installation on top of the rubber ball allows a slightly springable support of the base body. In addition, a particularly superior frictional engagement is achieved. Rubber produces a high static friction when it contacts various materials. The free ends of the profiled rod may be provided with concave contact surfaces for the rubber balls. This positive contact advantageously prevents the profiled rod that is vertically arranged on the ball from sliding off the rubber ball.

According to another embodiment of the invention, each eyelet arranged in the groove is limited by a pulley for the spring element which is rotatably arranged on an axle mounted on the groove walls at a defined distance from the groove bottom. The spring element that, for example, is realized in the form of a rubber cord can be guided over the pulleys with little frictional losses. Since the rubber cord does not have to be guided over an edge, its mechanical stress is minimized.

The axle of the pulley is preferably mounted on the groove walls in a detachable fashion such that the pulley can be easily detached from the base body. For example, this makes it possible to utilize different pulleys, in particular, in instances in which rope-like spring elements

with different diameters are used.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying drawings. It is to be understood, however, that the drawings are designed as an illustration only and not as a definition of the limits of the invention.

In the drawings, wherein similar reference characters denote similar elements throughout the several views:

Figure 1 shows a side view of a portable power training device according to the invention; and

Figure 2 shows a perspective representation of the device shown in Figure 1, namely in a position in which is it installed on an installation surface.

DESCRIPTION

Referring now in detail to the drawings, Figure 1 contains a base body that has the form of a long integral

profile. This base body is realized in the form of profiled rod 1. Profiled rod 1 has a length of approximately one meter. The diameter amounts, for example, to 5 cm such that it is possible to encompass profiled rod 1 with one hand.

Bow-type handle 3 is integrally formed onto profiled rod 1 in the central region of its longitudinal extent. Bow-type handle 3 does not significantly complicate the design of the base body since it is integrally connected to profiled rod 1. Bow-type handle 3 and profiled rod 1 form through-opening 4 into which, for example, feet or hands can be inserted. The width of through-opening 4 amounts, for example, to 30 cm. Grips 2 are arranged on bow-type handle 3.

Handle regions are formed by means of grips 2 on the surface of profiled rod 1. Grips 2 are integrally formed onto the surface of the bow-type handle and/or the surface of certain sections of the profiled rod. Grips 2 may be realized in the form of ribs, elevations, furrows or naps. They serve for roughening the surface. The frictional force between the hands or feet and bow-type handle 3 or profiled rod 1 is increased due to grips 2.

Groove 5 is arranged in profiled rod 1 on the side situated opposite of bow-type handle 3. Groove 5 extends

over the entire length of profiled rod 1. The groove walls have a flattened section in the central section of profile rod's 1 longitudinal extent. The flattened section is an area where the groove walls are simply no longer present.

A spring element in the form of rubber cord 6 is inserted into groove 5. Rubber cord 6 extends through the entire groove 5. The open region of the flattened section makes it possible to simply take hold of rubber cord 6, making the spring element partially accommodated within profiled rod 1. Due to groove 5, rubber cord 6 does not become jammed at the locations where it engages profiled rod 1.

Rubber cord 6 is guided through eyelets disposed at the free ends of profiled rod 1. Rubber cord 6 has a thickening, the diameter of which is greater than the diameter of the eyelet, on its free ends. This is realized in rubber balls 7. Rubber balls 7 are integrally connected to rubber cord 6. The free ends of rubber-cord 6 are prevented from sliding through the eyelets. Rubber-cord 6 and profiled rod 1 are connected to one another in a captive fashion.

Figure 2 shows that the device can be installed on installation surface 9, for example, a floor, with rubber

ball 7. This allows a slightly springable support of profiled rod 1. The free ends of profiled rod 1 may be provided with concave contact surfaces for rubber balls 7. This positive contact advantageously prevents profiled rod 1 that is vertically arranged on rubber balls 7 from sliding off rubber balls 7.

Each eyelet is limited by pulleys 10 inserted into groove 5 on the free ends of profiled rod 1. Each pulley 10 is arranged on axles 11 that are detachably mounted on the walls of groove 5 and aligned parallel to the groove bottom. Rubber cord 6 can be guided over pulleys 10 with little frictional losses. Since rubber cord 6 does not have to be guided over an edge, its mechanical stress is minimized. Axels 11 are detachable so that pulleys 10 can be easily detached from profiled rod 1. This makes it possible to used different pulleys for rope-like spring elements with different diameters.

The guidance of rubber cord 6 in groove 5 allows a series of exercises in which the person performing the exercises supports profiled rod 1 with one hand, foot, or knee. While supporting profiled rod 1, the person is able to exert a force upon rubber cord 6 in order to exercise without interference of the support hand, foot, or knee. Bow-type

handle 3 also provides a means of support during such exercises. Rubber balls 7 extend out of groove 5 so that exercises can be performed with various body sections at the end locations of profiled rod 1. Groove 5 also makes it possible to access rubber-cord 6 within the region between the eyelets. Rubber-cord 6 can be removed from groove 5 and tensioned similar to a bow.

Accordingly, while only one embodiment of the present invention has been shown and described, it is obvious that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.